SLOVENSKI STANDARD
SIST EN 1646-1:2018

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Nadomešča:
SIST EN 1646-1:2012

Bivalna počitniška vozila - Avtodomi - 1. del: Zdravstvene in varnostne zahteve za bivanje

Leisure accommodation vehicles - Motor caravans - Part 1: Habitation requirements relating to health and safety

Bewohnbare Freizeitfahrzeuge - Motorcaravans - Teil 1: Anforderungen an den Wohnbereich hinsichtlich Gesundheit und Sicherheit

Véhicules habitables de loisirs - Autocaravanes - Partie 1 : Exigences d'habitation relatives à la santé et à la sécurité

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43.100	Osebni avtomobili. Bivalne prikolice in lahke prikolice	Passenger cars. Caravans and light trailers

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EUROPEAN STANDARD

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English Version

Leisure accommodation vehicles - Motor caravans - Part 1: Habitation requirements relating to health and safety

Véhicules habitables de loisirs - Autocaravanes - Partie 1 : Exigences d'habitation relatives à la santé et à la sécurité

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This European Standard was approved by CEN on 6 December 2017.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 1646-1:2018) has been prepared by Technical Committee CEN/TC 245 “Leisure accommodation vehicles”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1646-1:2012.

In relation to EN 1646-1:2012, the main technical changes are:

a) reference to EN 1646-2 (withdrawn) deleted throughout the document;

b) in 5.2.2 “Minimum tread dimensions”, requirements specified;

c) new 5.3.4 added for dead-locking systems;

d) 6.1.3 “Protection against falling out” simplified;

e) in 7.4.2 “Outlets and couplings from toilet holding tanks”, requirements specified and extended;

f) 12.1.2 “Escape path” and 12.1.3 “Sanitation compartment” clarified;

g) 12.1.6 “Emergency windows and emergency panels” modified;

h) 12.2 “Protection of flammable elements” specified;

i) in Clause 14 “User's handbook”, information added and new types of fire extinguisher covered;

j) normative references updated;

k) editorially modified.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Figure 1 gives an overview of the relevant European Standards for caravans, motor caravans and caravan holiday homes.

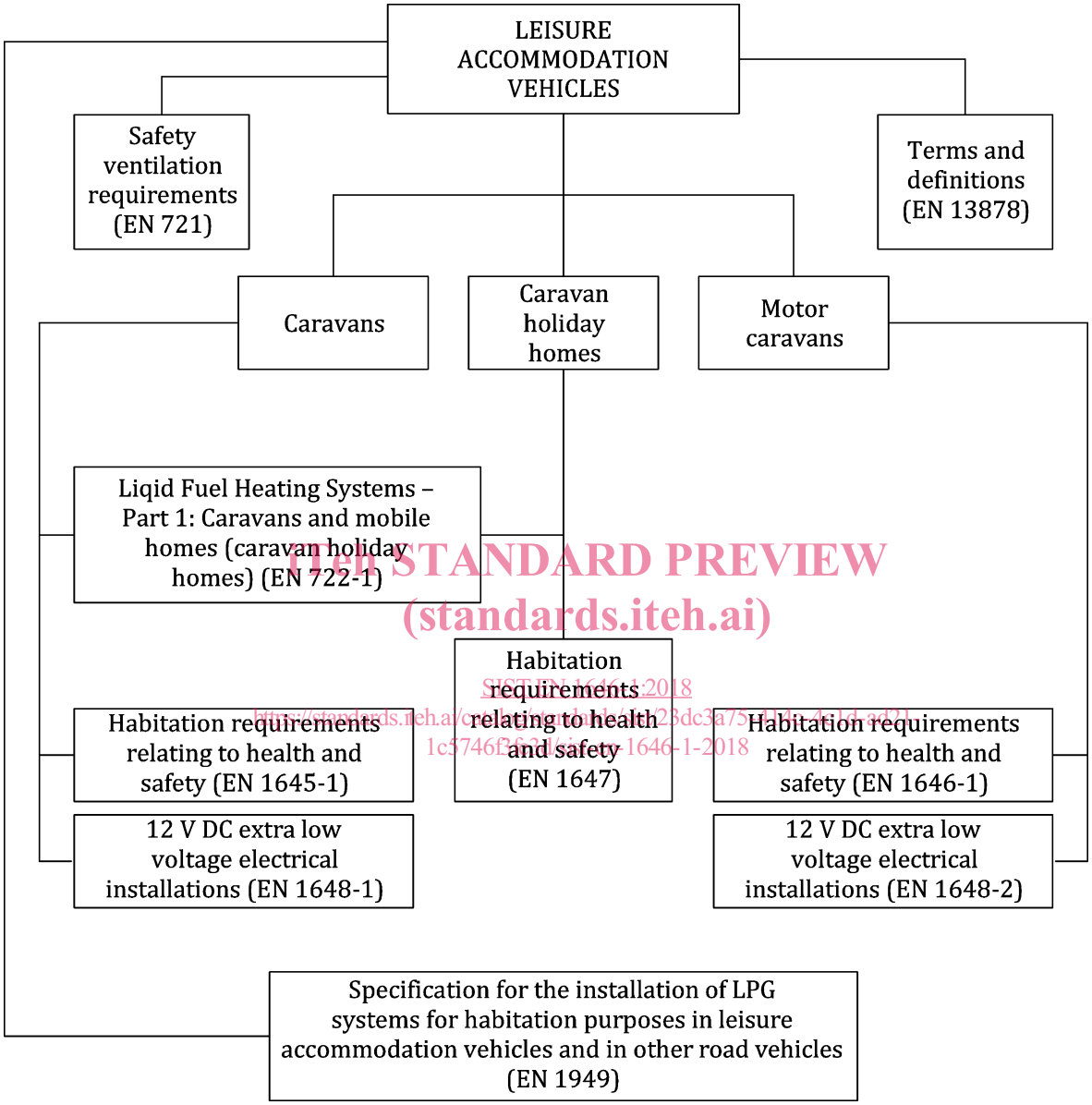

Figure 1 — Overview of relevant European Standards applying to leisure accommodation vehicles

1 Scope

This document specifies requirements intended to ensure the safety and health of persons when they use motor caravans for temporary or seasonal habitation.

It also specifies the corresponding test methods.

Specific requirements of this document apply to motor caravans where the overall length multiplied by the overall width does not exceed 13,5 m^2 plan area.

Requirements applicable to road safety are not included in the scope of this document.

This document is applicable exclusively to motor caravans as defined in EN 13878.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3-7, *Portable fire extinguishers — Part 7: Characteristics, performance requirements and test methods*

EN 721, *Leisure accommodation vehicles — Safety ventilation requirements*

EN 1648-2, *Leisure accommodation vehicles — 12 V direct current extra low voltage electrical installations — Part 2: Motor caravans*

EN 1949, *Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and accommodation purposes in other vehicles*

EN 13878, *Leisure accommodation vehicles — Terms and definitions*

HD 60364-7-721, *Low-voltage electrical installations — Part 7-721: Requirements for special installations or locations — Electrical installations in caravans and motor caravans (IEC 60364-7-721)*

EN ISO 8936, *Awnings for leisure accommodation vehicles — Requirements and test methods (ISO 8936)*

ISO 4649:2017, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13878 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Testing

The tests described in Annexes A to K are intended to verify that a motor caravan representative of a given model, including its fixtures and fittings, meets the requirements of this document.

These tests are intended to simulate the most onerous conditions, for the relevant characteristics.

It is recommended to take environmental aspects into account during development, production and disposal of motor caravans based on established knowledge and within the respective technical possibilities (see also Annex L).

5 Design and construction

5.1 Occupancy

The manufacturer shall designate the occupancy as the number of berths, both standard berths and additional berths provided by the manufacturer and shall include it in the user's handbook and in his brochures. The occupancy is also necessary to determine the ventilation requirements (see EN 721).

NOTE The number of seating positions defined on the registration certificate might be different.

5.2 Entrance steps to living area

5.2.1 Heights

When the entrance height of the motor caravan, measured at maximum technically permissible laden mass, and standing on horizontal ground, exceeds 400 mm, the motor caravan shall either be fitted with an entrance step, attachable or integral with the structure of the motor caravan, or a separate entrance step(s) shall be provided. An integral entrance step can be either retractable, folding or fixed.

The rise of the first tread shall not exceed 400 mm. The rise of any other tread shall not exceed 300 mm.

It is recommended that the rise of the steps be equal.

5.2.2 Minimum tread dimensions

The minimum tread dimensions shall be:

a) attachable or integral entrance steps: 150 mm going over a minimum, uninterrupted width of 320 mm;

b) separate steps: 270 mm going over a minimum, uninterrupted width of 450 mm.

5.2.3 Mechanical strength

An entrance step and any fixing devices shall be capable of withstanding a force of 2 000 N applied to any surface area of 100 mm × 150 mm of the tread(s).

After application of this force for a period of 5 min, any permanent deformation caused shall not exceed 5 mm.

The strength of each step shall be tested in accordance with Annex A.

5.2.4 Slip resistance test

5.2.4.1 Attachable or integral step

An attachable or integral step shall have a slip resistant surface.

The slip resistance shall be tested in accordance with Annex B.

5.2.4.2 Separate entrance step

A separate entrance step shall have a slip resistant surface. The slip resistant surface shall be tested in accordance with Annex B after having immobilized the feet or base of the step.

In addition, a separate step shall remain stable when tested in accordance with Annex C.

5.3 Doors

5.3.1 Dimensions

5.3.1.1 Motor caravans above 13,5 m^2 plan area

Each exterior door opening to the habitation area shall have a minimum clear height of 1 590 mm and a minimum clear width of 480 mm and corners of maximum radius of 90 mm. The locking system may intrude on the minimum width up to 30 mm and for a maximum height of 150 mm, regardless of the number of locks.

5.3.1.2 Motor caravans equal to or less than 13,5 m^2 plan area

Each exterior door opening to the habitation area shall have a minimum clear height of 1 140 mm and a minimum clear width of 480 mm and corners of maximum radius of 90 mm.

There shall be a clear opening free from any obstruction of at least 0,65 m^2.

5.3.2 Securing doors

Each exterior door shall be fitted with a locking device capable of keeping it closed when subjected to all forces caused by movement of the motor caravan in normal traffic conditions.

Interior doors shall be capable of being kept in a fixed position, open or closed, in the above conditions.

5.3.3 Childproof locking systems

When an external door is fitted with a childproof lock, a notice shall be permanently fixed close to the lock. The notice shall read:

— “Ensure that the childproof lock is not activated when the motor caravan is parked off the public highway”.

5.3.4 Dead-locking systems

If a dead-locking system is fitted on the base vehicle, information shall be included in the user's handbook on how to operate the doors from the inside when the dead-locking system is activated.

5.4 Awning rails

Any awning rail shall permit the correct fitting of an awning complying with EN ISO 8936.

6 Internal equipment

6.1 Bunks

6.1.1 Mattress and/or upholstery

Bunks shall be provided with mattresses or be upholstered.

6.1.2 Clearance

6.1.2.1 Motor caravans above 13,5 m^2 plan area

The clear height over 2/3 of the surface of the bunk shall be not less than 500 mm when measured from the compressed surface of the mattress or upholstery in accordance with the test in Annex D.

6.1.2.2 Motor caravans equal to or below 13,5 m^2 plan area

The clear height over half the surface area of the bunk shall be not less than 400 mm when measured from the compressed surface of the mattress or upholstery in accordance with the test in Annex D.

6.1.3 Protection against falling out

6.1.3.1 General

High level bunks shall be protected on all sides to prevent the occupant from falling out. Any gap between one element of protection and another shall conform to 6.1.7. However, no gap shall exceed 75 mm.

All protections shall be secured against unintentional loosening.

High level bunks shall be provided with a label written in the language of the country where the motor caravan is to be first sold with the following wording:

“Not suitable for children under 6 years old without supervision”.

6.1.3.2 Rigid protection

For rigid protection, the minimum height of the protection shall be at least 150 mm above the uncompressed upper surface of the mattress or upholstery. To allow entry, an access gap of 350 mm to 550 mm measured at its narrowest point shall be provided.

Where a rigid protection presents an apparent flexibility, its resistance shall be tested in accordance with Annex E.

A protection is considered as rigid if it is not bent more than 10 mm under a force of 100 N applied horizontally in the middle of the protection.

6.1.3.3 Protection by curtains or nets

Alternatively, the protection may be obtained by means of curtains or nets. The minimum height of the protection shall be at least 160 mm above the uncompressed upper surface of the mattress or upholstery, when the upper edge is loaded with 100 N in a vertical direction downward.

To allow access to the bunk, the curtains or nets on at least one side of the bunk may be detachable allowing an opening 350 mm to 550 mm.

The curtains or nets shall be capable of resisting a force of 100 N applied horizontally towards the outside of the bunk for 15 s to any point and this shall not result in any tearing nor detaching nor creating any gap larger than 60 mm at the lower edge of the protection.

The strength of the curtains or nets shall be tested in accordance with Annex E.

Any gap created during the resistance test shall be measured in accordance with Annex I.

6.1.4 Mechanical strength

A force of 1 000 N applied vertically downwards, for 1 h, from the midpoint of each side member of any bunk where the upper surface of the compressed mattress or upholstery is placed at a height of more than 500 mm from the floor, shall neither cause permanent deformation of more than 5 mm of the frame of the bunk nor damage the fixing of the bunk to the structure of the motor caravan.

The mechanical strength shall be tested in accordance with Annex F.

6.1.5 Security of bunks

If a bunk is designed to fold away, it shall be secured against unintentional folding away.

If a bunk is designed to be stored during transportation, it shall be secured against unintentional movement when stored.

All bunks shall not unintentionally move. All bunks shall be tested in accordance with Annex G.

6.1.6 Access to high level bunks

A means of access to an high level bunk shall be provided, such as surfaces of furniture, foot holes in a solid component, handles or a ladder which shall be fixed or be able to be attached to the bunk, in a safe manner.

The width of the treads between supports shall be at least 250 mm.

The distance between the top foothold and the uppermost part of the bed structure, e.g. the side rail or safety barrier, at the point of access shall not be more than 400 mm.

When a ladder is used, the upper surfaces of the treads shall be equally spaced within a tolerance of ± 12 mm, and the unobstructed distance between consecutive treads shall be (225 ± 25) mm.

When tested in accordance with Annex H, the ladder shall not move when subjected to a downward static load of 1 000 N and horizontal static load of 500 N; nor shall the ladder or its treads break or deflect permanently by more than 5 mm.

Where it is impractical to test the bunk ladder in the motor caravan, it is acceptable to test an identical configuration of the ladder, its method of fixing and its range of positions of use, outside the motor caravan according to Annex H.

6.1.7 Protection against entrapment

When ready for use, a bunk and its means of access shall not contain any open-ended tube; nor shall there be projections, holes, loose washers, speed fixing nuts or crevices on which clothing or any part of the body could become snagged or trapped. Tension springs in the base structure are excluded. All edges, corners and projecting parts that are accessible shall be free from burrs and sharp edges.

If the base of a bunk is not covered by permanently fixed upholstery, any gap in the base not covered by the mattress shall not permit the passage of the cone (see I.1) beyond the point at which the diameter of the cone is 75 mm, when measured in accordance with I.2.

Any other gap or space within the structure of the bunk which is accessible from the upper surface of the bunk, including mattress where applicable, shall be between 12 mm and 25 mm or between 60 mm and 75 mm (tested in accordance with I.3) or equal to or larger than 200 mm.

When a gap cannot be tested because a constructional feature prevents proper positioning of the cone, the constructional feature may be removed to the extent necessary to allow the tests to be carried out.

6.2 Cupboards

Bases of cupboards and shelves in cupboards at more than 1 000 mm from the floor of the vehicle at the place of measurement shall be provided with means to prevent their contents from sliding off.

Protection shall be appropriate for the items likely to be stored in the cupboards. Where an up-stand or lip is used as the method of protection, this should be a minimum height of 5 mm.

6.3 Cooking appliance

A cooking appliance shall be installed.